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| 10/774,820 | 02/09/2004 | Cameron W. Tanner | SP00-391C | 9241 |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/774,820

Applicant(s)

TANNER ET AL.

Examiner

BJ Forman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4,9,13,14,16,20,21,38 and 39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,9,13,14,16,20,21,38 and 39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

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DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 13 June 2007 has been entered.

Status of the Claims

2. This action is in response to papers filed 13 June 2007 in which claims 1-2, 4, 38 were amended, claims 22-23, 25, 31-34 were canceled and claim 39 was added.

All of the amendments have been thoroughly reviewed and entered. The previous rejections in the Office Action dated 16 April 2007 are withdrawn in view of the amendments. Applicant's arguments have been thoroughly reviewed but are deemed moot in view of the amendments, withdrawn rejections and new grounds for rejection. New grounds for rejection are discussed.

Claims 1-2, 4, 9, 13-14, 16, 20-21, 38 and 39 are under prosecution.

Priority

3. Applicant's claim for domestic priority under 35 U.S.C. 120 is acknowledged. The parent applications 10/101,135 and 09/650,885 provide adequate support under 35 U.S.C. 112 for the instantly claimed inventions.

The effective filing date for Claims 1-2, 4, 9, 13-14, 16, 20-21, 38 and 39 is the filing date of the '855 application i.e. 30 August 2000.

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Oath/Declaration

4. The oath is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The substitute oath submitted 13 June 2007 correctly identifies the citizenship of each inventor and therefore overcome the previous objection.

However, the oath incorrectly identifies the priority document as 09/101,135. The correct priority document is 10/101,135:

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 2, 4, 9, 13-14, 16, 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glazer et al (U.S. Patent No. 6,824,866, filed 7 April 2000, having priority to 60/128,402, filed 8 April 1999) in view of Meissner (U.S. Patent No. 5,441,803, issued 15 August 1995).

Regarding Claim 1, Glazer et al disclose a substrate for attaching analytes, the substrate comprising a porous predominately inorganic layer derived from a frit of particles adhered to a flat, rigid non-porous, inorganic understructure (glass microscope slide), the inorganic layer having a plurality of interconnected voids that extend through to a top surface of the porous inorganic layer (Fig. 2, pores #128, Column 10, lines 38-53 and Column 29, lines 58-62). It is noted that the instant specification defines frit layer of individual particles as

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glass particles e.g. borosilicate (§ 48 and 56). Glazer et al define the particle layer as borosilicate particles (Columns 9-10 and Fig. 1-2). Glazer et al further teach the voids are "open" and/or filled with gas (Column 9, lines 30-41 and Column 29, lines 58-62). Glazier et al teach the porous layer is adhered to a flat, rigid non-porous, inorganic understructure (glass microscope slide), but is silent regarding an intervening layer for adhesion. However, intervening particulate glass layers of differing transition temperatures, which provide adhesion between the layers was well known and routinely practiced in the art at the time the claimed invention was made as taught by Meissner.

Meissner teaches the layered glasses provide adhesion between the layers without the use of adhesives or other contaminants (Column 5, lines 65-Column 6, line 45); provide optical homogeneity (Column 4, lines 64-67); provide absorption properties that cannot be obtained with a single glass; and provide optical waveguides with lower scattering losses (Column 8, lines 20-38). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the intervening glass layer of Meissner to the substrate of Glazer et al. One of ordinary skill in the art would have been motivated to do so with a reasonable expectation of success for the numerous advantages taught by Meissner e.g. optical homogeneity (Column 4, lines 64-67).

Regarding Claim 2, Glazer et al disclose the substrate further comprises a uniform coating of a binding agent (e.g. silanes) over at least part of the surface area (Column 11, lines 36-45 and Column 13, lines 52-60).

Regarding Claim 4, Glazer et al disclose the substrate wherein the binding agent is a cationic polymer i.e. aminopropyl-silane (Column 7, lines 11-17 and Column 13, lines 52-60).

It is noted that the instant specification defines the silane binding agent GAPS as γ -aminopropyltriethoxysilane (GAPS) (page 7, lines 3); γ '-aminopropylsilane (GAPS)- (page 11, line 10).

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Regarding Claim 9, Glazer et al disclose the substrate wherein the porous inorganic layer is a material that is transparent e.g. silicate, aluminosilicate, boroaluminosilicate, borosilicate glass or light-transmitting fibers (Column 5, lines 41-60 and Column 9, lines 19-20).

Regarding Claim 13, Glazer et al disclose the substrate wherein the inorganic layer has a thickness of about 5 μ m (Column 2, lines 28-30)

Regarding Claim 14, Glazer et al disclose the substrate wherein the particles have a mean size of about 3.5 μ m (Column 11, lines 25-27).

Regarding Claim 16, Glazer et al disclose the substrate wherein the voids have mean size of about 0.3 to 20 μ m (Column 7, lines 19-25).

Regarding Claim 20, Glazer et al disclose the substrates provide a sensitivity of at least one order of magnitude greater than comparable non-porous substrates (Column 24, lines 8-13 and Column 33, lines 3-8).

Regarding Claim 21, Glazer et al disclose the substrate wherein the porous inorganic layer is derived from at least partial sintering (Column 10, lines 28-34).

7. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over by Glazer et al (U.S. Patent No. 6,824,866, filed 7 April 2000, having priority to 60/128,402, filed 8 April 1999) in view of Meissner (U.S. Patent No. 5,441,803, issued 15 August 1995) as applied to Claim 1 above and further in view of Kuroita et al (U.S. Patent No. 5,990,302, filed 11 July, 1997).

Regarding Claim 14, Glazer et al disclose a substrate for attaching analytes, the substrate comprising a porous predominately inorganic layer derived from a frit of particles adhered to a flat, rigid non-porous, inorganic understructure (glass microscope slide), the

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inorganic layer having a plurality of interconnected voids that extend through to a top surface of the porous inorganic layer (Fig. 2, pores #128, Column 10, lines 38-53 and Column 29, lines 58-62). It is noted that the instant specification defines frit layer of individual particles as glass particles e.g. borosilicate (§ 48 and 56). Glazer et al teach the particles have a size of about 3.5µm (Column 11, lines 25-27). Furthermore, the preferred size for silica particles was known to be about 3.5µm as taught by Kuroita (Column 5, lines 18-26). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the preferred size for silica particles as known in the art to the silica particles of Glazer. One of ordinary skill in the art would have been motivated to do so with a reasonable expectation of success based on the preferred teaching of Kuroita (Column 5, lines 18-26).

8. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over by Glazer et al (U.S. Patent No. 6,824,866, filed 7 April 2000, having priority to 60/128,402, filed 8 April 1999) in view of Sun et al (U.S. Patent No. 6,129,603, issued 10 October 2000).

Regarding Claim 38, Glazer et al disclose a planar substrate for attaching analytes, the substrate comprising a porous inorganic layer derived from a frit of particles adhered to a flat, rigid non-porous, inorganic understructure (glass microscope slide); the inorganic layer having a plurality of interconnected voids that extend through to a top surface of the porous inorganic layer (Fig. 2, pores #128, Column 10, lines 38-53 and Column 29, lines 58-62), the voids having a predetermined mean size of not less than about 0.1µm dispersed throughout the layer (Column 11, lines 20-35). It is noted that the instant specification defines frit layer of individual particles as glass particles e.g. borosilicate (§ 48 and 56).

Glazer et al do not specifically teach tape casted frits. However, layered structure formed using tape casted glass frits was well known and routinely practiced in the art at the time the claimed invention was made as taught by Sun et al who teaches that tape casting

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provides layers having the desired shape and thickness (Column 5, lines 64-67). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the tape casted layers of Sun et al to the glass frit layers of Glaser et al. One of ordinary skill in the art would have been motivated to do so with a reasonable expectation of success and for the advantage of obtaining layers of desired shape and thickness as taught by Sun (Column 5, lines 64-67).

9. Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over by Glazer et al (U.S. Patent No. 6,824,866, filed 7 April 2000, having priority to 60/128,402, filed 8 April 1999) in view of Sun et al (U.S. Patent No. 6,129,603, issued 10 October 2000) as applied to Claim 38 above and further in view of Meissner (U.S. Patent No. 5,441,803, issued 15 August 1995).

Regarding Claim 39, Glazier and Sun et al teach the elements of Claim 38 as discussed above. Glazier et al teach the porous layer is adhered to a flat, rigid non-porous, inorganic understructure (glass microscope slide), but is silent regarding an intervening layer for adhesion. However, intervening particulate glass layers of differing transition temperatures, which provide adhesion between the layers was well known and routinely practiced in the art at the time the claimed invention was made as taught by Meissner.

Meissner teaches the layered glasses provide adhesion between the layers without the use of adhesives or other contaminants (Column 5, lines 65-Column 6, line 45); provide optical homogeneity (Column 4, lines 64-67); provide absorption properties that cannot be obtained with a single glass; and provide optical waveguides with lower scattering losses (Column 8, lines 20-38). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the intervening glass layer of Meissner to the substrate of Glazer et al. One of ordinary skill in the art would have been motivated to do so with a

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reasonable expectation of success for the numerous advantages taught by Meissner e.g. optical homogeneity (Column 4, lines 64-67).

10. Claims 1, 2, 4, 13, 22, 25, 31, 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Havens et al (U.S. Patent No. 6,306,348, filed 15 July 1999) in view of Meissner (U.S. Patent No. 5,441,803, issued 15 August 1995).

Regarding Claim 1, Havens et al disclose a substrate comprising an inorganic layer derived from particles adhered to a flat, rigid, non-porous inorganic understructure e.g. electrode (Column 3, lines 15-27 and Fig. 9), the inorganic layer having a plurality of interconnected voids dispersed throughout i.e. porous gel (Column 3, lines 28-37 and Column 10, lines 1-10).

Havens et al teach the porous layer is adhered to a flat, rigid non-porous, inorganic understructure, but are silent regarding an intervening layer for adhesion. However, intervening particulate glass layers of differing transition temperatures, which provide adhesion between the layers was well known and routinely practiced in the art at the time the claimed invention was made as taught by Meissner.

Meissner teaches the layered glasses provide adhesion between the layers without the use of adhesives or other contaminants (Column 5, lines 65-Column 6, line 45); provide optical homogeneity (Column 4, lines 64-67); provide absorption properties that cannot be obtained with a single glass; and provide optical waveguides with lower scattering losses (Column 8, lines 20-38). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the intervening glass layer of Meissner to the substrate of Havens et al. One of ordinary skill in the art would have been motivated to do so with a

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reasonable expectation of success for the numerous advantages taught by Meissner e.g. optical homogeneity (Column 4, lines 64-67).

Regarding Claims 2 and 4, Havens et al disclose the substrate is coated with a binding agent e.g. aminopropylsilane (Column 9, lines 52-60).

Regarding Claim 13, Havens et al disclose the inorganic layer has a thickness of about 5 μm (Column 5, lines 56-59).

11. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over by Havens et al (U.S. Patent No. 6,306,348, filed 15 July 1999) in view of Meissner (U.S. Patent No. 5,441,803, issued 15 August 1995) and further in view of Kuroita et al (U.S. Patent No. 5,990,302, filed 11 July, 1997).

Regarding Claim 14, Havens et al disclose a substrate comprising an inorganic layer derived from particles adhered to a flat, rigid, non-porous inorganic understructure e.g. electrode (Column 3, lines 15-27 and Fig. 9), the inorganic layer having a plurality of interconnected voids dispersed throughout i.e. porous gel (Column 3, lines 28-37 and Column 10, lines 1-10).

Havens et al teach the preferred particles are silica (Column 3, lines 15-27) but they are silent regarding a mean of 3.5 μm . However, the preferred size for silica particles was known to be about 3.5 μm as taught by Kuroita (Column 5, lines 18-26). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the preferred size for silica particles as known in the art to the silica particles of Havens. One of ordinary skill in the art would have been motivated to do so with a reasonable expectation of success based on the preferred teaching of Kuroita (Column 5, lines 18-26).

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12. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over by Havens et al (U.S. Patent No. 6,306,348, filed 15 July 1999) in view of Sun et al (U.S. Patent No. 6,129,603, issued 10 October 2000).

Regarding Claim 38, Havens et al disclose a substrate comprising an inorganic layer derived from particles adhered to a flat, rigid, non-porous inorganic understructure e.g. electrode (Column 3, lines 15-27 and Fig. 9), the inorganic layer having a plurality of interconnected voids dispersed throughout i.e. porous gel (Column 3, lines 28-37 and Column 10, lines 1-10).

Havens et al do not specifically teach tape casted frits. However, layered structure formed using tape casted glass frits was well known and routinely practiced in the art at the time the claimed invention was made as taught by Sun et al who teaches that tape casting provides layers having the desired shape and thickness (Column 5, lines 64-67). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the tape casted layers of Sun et al to the glass frit layers of Havens et al. One of ordinary skill in the art would have been motivated to do so with a reasonable expectation of success and for the advantage of obtaining layers of desired shape and thickness as taught by Sun (Column 5, lines 64-67).

13. Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over by Havens et al (U.S. Patent No. 6,306,348, filed 15 July 1999) in view of Sun et al (U.S. Patent No. 6,129,603, issued 10 October 2000) as applied to Claim 38 above and further in view of Meissner (U.S. Patent No. 5,441,803, issued 15 August 1995)

Regarding Claim 39, Havens et al disclose a substrate comprising an inorganic layer derived from particles adhered to a flat, rigid, non-porous inorganic understructure e.g. electrode (Column 3, lines 15-27 and Fig. 9), the inorganic layer having a plurality of

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interconnected voids dispersed throughout i.e. porous gel (Column 3, lines 28-37 and Column 10, lines 1-10).

Havens et al teach the porous layer is adhered to a flat, rigid non-porous, inorganic understructure, but are silent regarding an intervening layer for adhesion. However, intervening particulate glass layers of differing transition temperatures, which provide adhesion between the layers was well known and routinely practiced in the art at the time the claimed invention was made as taught by Meissner.

Meissner teaches the layered glasses provide adhesion between the layers without the use of adhesives or other contaminants (Column 5, lines 65-Column 6, line 45); provide optical homogeneity (Column 4, lines 64-67); provide absorption properties that cannot be obtained with a single glass; and provide optical waveguides with lower scattering losses (Column 8, lines 20-38). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the intervening glass layer of Meissner to the substrate of Havens et al. One of ordinary skill in the art would have been motivated to do so with a reasonable expectation of success for the numerous advantages taught by Meissner e.g. optical homogeneity (Column 4, lines 64-67);

Conclusion

14. No claim is allowed.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BJ Forman whose telephone number is (571) 272-0741. The examiner can normally be reached on 6:00 TO 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ram Shukla can be reached on (571) 272-0735. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished


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applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public.

For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.



BJ Forman, Ph.D.
Primary Examiner
Art Unit: 1634
September 12, 2007